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10/506,717

09/07/2004

Takeo Yamaguchi

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EXAMINER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/506,717	<b>Applicant(s)</b> YAMAGUCHI ET AL.	
	<b>Examiner</b> HELEN O.K. CONLEY	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4,7-22,24,26,27,29,30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,7-22,24,26,29,30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant's amendment has been received on 11/9/09. Claims 1, 14-17, 19, 21, 24 have been amended. Claim 2, 3, 23, 25 have been cancelled.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 4, 7-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, Claim 1, 4, 7-13 recites the limitation "the polyimide" in line 3. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claims Analysis***

1. It is noted that claims 1, 4, 7-13, 24, 26, 27, 29, 30 are product-by-process claims. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since the porous polyimide is the same as to that of the Applicant's, Applicant's process is not given patentable weight in this claim.

***Claim Rejections - 35 USC § 102/103***

4. The rejections under 35 U.S.C 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takeo et al. on claims 1, 4, 7-13, 24, 26, 27 are maintained. The rejection is repeated below for convenience.

5. The rejections under 35 U.S.C 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takeo et al. on claims 14, 18, 21, 22, are withdrawn because the Applicants amended the claims.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4, 7-13, 24, 26, 27, 29, 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takeo et al. (EP 1 202 365).

In regards to claims 1, 4, 7-9, 11-13, 30, the Takeo et al. reference a process of making and a product of a direct methanol solid polymer fuel cell which comprises a

porous (Figure 1 and 2) polyimide (Paragraph 17) and electrolyte with two or more proton conductive monomers can be used to produce a co-polymer (Paragraph 23-25).

The Takeo et al. discloses the porous substrate is swell resistant (Abstract) that is normalized 1.2 or less and 0.2 or more (Paragraph 26). Porous substrate undergoes pervaporation at 25 C. The Takeo et al. discloses a porous substrate with an average pore diameter to be 0.001 to 100. $\mu$ m, the porosity to be between 10-95% and a thickness of 100. $\mu$ m (Paragraph 4). The Takeo et al. reference also discloses a heat resistance at a temperature of higher than 130 degrees Celsius (P61) but does not disclose a heat resistance of a temperature of higher than 200 degrees Celsius, however, for the range higher than 130 degrees but less than or equal to 200 degrees Celsius, it is the Examiner's position that the amounts in question are so close that it is a prima facie obvious that one skilled in the art would have expected them to have the same properties *Titanium Metals Corp. v. Banner*, 227 USPQ 773. The range over 130 degrees Celsius which encompasses over 200 degree is anticipated.

In regards to claim 10, the proton conductivity of the electrolyte membrane 0.001S/cm and not higher than 10.0 S/cm at 25 C and 100% humidity is an inherent trait of the invention by Takeo et al, since the invention by Takeo et al. and the Applicants invention is the same. Further it is known in the art that proton conductivity of Nafion is approximately  $7.8 \times 10^{-2}$  S/cm. The Takeo et al. discloses that the proton conductivity of the invention is improved over Nafion (Paragraph 61) , therefore, it would be obvious that the proton conductivity of the invention by Takeo et al. is in the range of 0.001 S/cm

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and 10.0 S/cm. Please note that Paragraph 58 tested the invention in a mixture of water and methanol under its equilibrium vapor pressure or supersaturated state. Under the equilibrium vapor pressure incorporates 100% humidity.

In regards to claim 24, 26, 27, the Takeo et al. reference discloses a fuel cell having a proton conductivity of between 0.001 S/cm to 10.0 S/cm at 25 degree Celsius in 100% humidity that is swelling resistant. Since the electrolyte membrane as disclosed by Takeo et al. is the same as invention of the Applicants, the intrinsic property of  $0.01 \text{ m}^2 \text{ h/kg} \cdot \mu\text{m}$  to  $10.0 \text{ m}^2 \text{ h/kg} \cdot \mu\text{m}$  must also be the same.

It is noted that independent claims 1, 24, 29 and claims dependent therefrom, are product-by-process claims. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Since electrolyte membrane is the same invention to that of the Applicant's, Applicant's process is not given patentable weight in this claim.

***Claim Rejections - 35 USC § 103***

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8. The rejections under 35 U.S.C 103(a) as obvious over Takeo et al. in view of Brunner et al. on claims 14-22 are maintained. The rejection is repeated below for convenience.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo et al. (EP 1 202 365) in view of Brunner (US Patent 3,542,703)

Regarding claim 14, 16, 17, 22 the Takeo et al. reference discloses a method of for producing an electrolyte membrane comprising a porous polyimide substrate filled with electrolytic substance. The electrolyte substance is graft polymer consisting of monomer each having an ion-exchange group is formed at the inner surfaces of the pores. The grafting polymerization of the electrolyte monomers can be formed by plasma-irradiation (Applicants step X-4)the polyimide substrate in the monomer solution (Applicant's filing the monomer into pores of the substrate and step (Y-1)) and bubbling in inert gas in temperature of 20-100 Celsius (Applicant's heating the monomer to polymerizing) (P31-P32) . The Takeo et al. reference discloses the porous substrate with an average pore diameter to be 0.001 to 100.mu.m. The Takeo et al. reference also discloses a heat resistance at a temperature of higher than 130 degrees Celsius (P61) which incorporates over 200 degrees Celsius.

Since the polyimide substrate is porous it is inherent that the polyimide substrate has a network structure that is composed of polymer phase and void phase inside thereof and forming microscopic continuous holes and the porous substrate has porous structure on both surfaces.

The Takeo reference does not disclose 1) wherein the porous polymer substrate consists of a polyimide that is obtained from 3, 3', 4, 4' – biphenyltetracarboxylic acid dianhydride as a tetra carboxylic acid component and oxydianiline as a diamine component and 2) a thermal shrinkage ratio of plus or minus 1% or less upon thermal treatment at 105 degrees Celsius for 8 hrs.

However, the Brunner et al. reference discloses a method of making a polyimide porous substrate by heating 3, 3', 4, 4' – biphenyltetracarboxylic acid dianhydride as a tetra carboxylic acid component and oxydianiline as a diamine component. By utilizing this method of producing a polyimide porous substrate (1:35-40) , the substrate will improve the ability of impregnation by solutions (2:30-35), therefore, it would be obvious to one skilled in the art at the time the invention was made to incorporate the porous polyimide substrate made by the process as disclosed by the Brunner et al. reference into the method of making the electrolyte membrane requiring a porous polyimide substrate impregnated with electrolyte as disclosed by the Takeo reference to improve impregnation properties of the porous polyimide substrate to obtain higher electrolyte retention resulting in higher conductivity.

The Takeo reference and the Brunner reference does not disclose a thermal shrinkage ratio of plus or minus 1% or less upon thermal treatment at 105 degrees



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Celsius for 8 hrs, however, it is the position of the Office that such properties are inherent, given that Takeo in view of Brunner et al. and the present application utilizes the same method in making an electrolyte membrane. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. In re Robertson, 49 USPQ2d 1949 (1999). Where the claimed and prior art products are identical or substantially identical in structure or composition or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *MPEP2112.01 I*

In regards to claim 15, the Takeo et al. reference discloses a step of heating the monomer to polymerize the monomer however, the Takeo et al. does not disclose repeating the same step again. In general the transposition of process steps or the splitting of one step into two, where the processes are substantially identical or equivalent in terms of function was held to be not patentably distinguish the processes. Ex parte Rubin 128 USPQ 159 (PO BDPatApp 1959).

In regards to claim 18, The membrane resists swelling (Abstract) and therefore, cannot be swollen with methanol or water.

Regarding claim 19, the Takeo reference disclose that silane coupler or the like to polymerize the monomers (P21)

Regarding claim 20, the Takeo reference discloses that the monomers are polymerized but does not disclose if the monomers form cross-linked polymers, however, monomers have only three ways of polymerizing monomers. The three ways

are to crosslink, uncrosslink or comprises both crosslink or uncrosslink polymers. If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103 likely bars its patentability. **KSR v. Teleflex**

Regarding claim 21, the Takeo reference discloses that the electrolytic substance is chemically bound to the interface of the porous polyimide substrate by the step of heating the monomer to polymerize (P21)

### ***Response to Arguments***

11. Applicant's arguments filed 11/9/09 have been fully considered but they are not persuasive.

A) The Applicants argue, *"The Examiner has indicated in the outstanding Office Action, as well as during the Examiner correspondence described above, that the pending independent claims recite product- by-process style limitations, which do not sufficiently limit the claimed subject matter to the chemical species recited in the claims."*

*For example, Claim 1 recites an electrolyte membrane comprising, inter alia, a porous substrate consisting of one of three genera of polyimides formed by reacting a biphenyl tetracarboxylic acid dianhydride with one of three genera of diamines (1)-(3). Claim 1 stands rejected, as will be described in further detail below, in view of the Takeo reference (EP1202365), which teaches only "a polyimide" substrate. While the compounds formed by Claim 1 are polyimides, they are very specific genera that are not taught by, or otherwise obvious in view of, the Takeo reference.*

*The Examiner has indicated that Claim 1 does not sufficiently limit the recited polyimides to the genus of the reaction products of (1)-(3) because the claim is in a product-by-process style. Thus, the Examiner has interpreted the claim as reciting all polyimides, instead of the intended limitation of the claim to the recited products of (1)-(3).*

*During the conference of October 7, 2009, the Examiner indicated that defining the recited genera more clearly may address the above-discussed issues with regard to the present broad interpretation of Claim 1. Claim 1, as amended, positively defines the specific genera of polyimides formed”* However, to clarify, the Applicants stated that no conclusion were made during the Telephonic Interview of 11/6/09 Page 9 of the Applicants Arguments/Remarks and therefore, *“as amended, positively defines the specific genera of polyimides formed”* was never agreed by the Examiner during the telephonic interview. The amendments are still product-by-process claims and therefore, the rejections are maintained above. Furthermore, the Applicants argue, *“Thus, the Examiner has interpreted the claim as reciting all polyimides, instead of the intended limitation of the claim to the recited products of (1)-(3).”* However, these arguments do not commensurate with the scope of the claims and therefore are moot. The reaction product is polyimide and not the components with formula of 1-3.

b) The Applicants argue, *“Additionally, for the Examiner's reference, attached hereto is Exhibit A, an excerpt from Polymer Chemistry (Malcolm Stevens, Oxford University Press, 1999) that discuss polyimides formed from dianhydrides and diamines (Schemes 13.53 and 13.54). These schemes demonstrate that one of skill in the art*

*would know the specific genera recited by the claimed reaction products. For example, the recited biphenyltetracarboxylic acid would replace compound 33 in Scheme 13.53 and one of genera (1)-(3) would replace the H<sub>2</sub>N-R-NH<sub>2</sub> diamine*

*of Scheme 13.53. Thus, the reaction product of such a reaction is defined by the composition of the dianhydride and the diamine "R group" as illustrated in Scheme 13.54.*

*Independent Claims 14, 17, and 24, and Claim 29, which depends from Claim 1, all recite specific species of reaction products, which would be understood by one of skill in the art to form a specific reaction product thus these claims, and those depending therefrom, recite a specific species of polyimide as the porous substrate.*

*Applicants believe that the amended claims properly limit the invention to the recited genera and species of each claim"*

However, Exhibit A does not demonstrate any evidence that would withdraw the rejections above. Exhibit A is not commensurate with the scope of the claims and therefore is moot. The Applicants, for example, must demonstrate that by using components of biphenyltetracarboxylic acid dianhydrides in addition to diamines of (1)-(3) as claimed, does not always produce polyimides. As it is claimed, the claimed invention lacks novelty over the prior art.

C) The Applicants argue, "Applicants believe that the amended language of Claim 1 does not lack antecedent basis, as defined in M.P.E.P. 2173.05(e), which only requires that a claim be free of "words or phrases whose meaning is unclear." The amended claims do not further recite a reference back to the "polyimide reaction

product" and thus, there is no need to provide antecedent basis for the term using the article "a". The amended claim has a clear meaning" However, the phrases are unclear because using "the" polyimide material when there were no reference to such a limitation prior in a claim is lack of antecedent basis. It is improper for the Examiner to import the specification into the claimed limitations, the claims are read in light of the specification. The Applicants can easily avoid using the phrase "consist of the polyimide reaction product" by using, for example, "consist of polyimide reaction product."

D) Applicants argue, *"The independent claims at issue in this rejection, Claims 1 and 24, all recite specific species (or genera) of polyimide compounds useful for making electrolytic membranes for fuel cells. The Examiner relies on Takeo et al. as teaching a product and process for making a fuel cell comprising a porous polyimide electrolyte. It is asserted that Takeo et al. teaches a broad genus that includes polyimide materials useful for making porous fuel cell materials. However, for the following reasons, the disclosure of such a broad genus is not anticipatory nor does it make obvious the specific species and narrow genera recited in Claims 1 and 24 and those claims depending therefrom"* However, the recited claimed limitations of polyimide is still very broad. The product polyimide is such a broad limitation that it does not impart any specific structure of the reaction components of biphenyltetracarboxylic acid dianhydride and a diamine. In addition, because the Applicants are claiming a product, The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art,

the claim is unpatentable even though the prior product was made by a different process (Please refer to MPEP 2113)

E) the Applicants argue, "*A discussion of the anticipation of a species by a genus taught by a prior art reference can be found in M.P.E.P. § 2131.02, which states that "if one of ordinary skill in the art is able to 'at once envisage' the specific compound within the generic chemical formula, the compound is anticipated."* (M.P.E.P. § 2131.02 citing *ExParteA*, 17 U.S.P.Q. 2d 1716 (Board of Patent Appeals and Interferences 1990). Further, "*one of ordinary skill in the art must be able to draw the structural formula or write the name of each of the compounds included in the generic formula before any of the compounds can be 'at once envisaged.'*" (1*bid.*) The Takeo et al. reference only mentions polyimide once in the reference (at ¶ [0017]) and does not teach any specific embodiments that include polyimides. Thus, Takeo et al. teaches an almost infinite number of polyimides but teaches no specific examples of such polyimides. Because the invention as set forth in Claims 1 and 24 recite specific species of polyimides that are not taught or suggested by Takeo et al. (and thus cannot be at once envisaged by a reader of the reference), it is submitted that the reference is not anticipatory.

Furthermore, because Takeo et al. does not teach, suggest, or otherwise make obvious the specific species of polyimides set forth in Claims 1 and 24, it is submitted that the claimed invention is not obvious in view of Takeo et al.

For these reasons, withdrawal of this ground for rejection is respectfully requested. " However, MPEP 2113 states that "A Generic Chemical Formula will Anticipate a Claimed Species Covered by the Formula When the Species can be "At

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Once Envisaged" from the Formula." The Applicants never claimed a specific species. A disclosure, whether or not the prior art illustrates a specific example, is still a disclosure. The Applicants are claiming an infinite number of polyimides and therefore the claim limitation was treated as such. The prior art Takeo et al. still applies to the claimed invention.

F) The Applicants argue, "*The Examiner characterizes Takeo et al. (as described above) as teaching a polyimide porous substrate and relies on Brunner et al. as teaching a polyimide formed from 3,3',4,4'- biphenyltetracarboxylic acid and oxydianiline. The Examiner believes that one of skill in the art would combine the teachings of Brunner et al. and Takeo et al. to arrive at the claimed invention. Applicants assert that the combined teachings of Takeo and Brunner do not teach, suggest, or otherwise make obvious the specific species of porous substrate recited in Claims 14-22.*

*Brunner et al. teaches a composition that comprises (1)a bis ester of an aromatic tetracarboxylic acid, (2)an inert organic solvent, (3)melamine, and (4)an aromatic diamine (Abstract). Brunner et al. explicitly teaches that the addition of melamine results in compositions with improved thermal stability (Col. 2, lines 59-64). Brunner et al. also teaches that the composition is useful as a varnish, syrup, coating, or impregnating/adhesive agent (Col. 2, lines 64-66). It is submitted that Brunner et al. does not teach the polyimide of the claimed invention because, inter alia, the reference teaches a polymer that includes melamine as an essential element, whereas the polyimide of Claims 14-22 is obtained from 3,3',4,4'- biphenyltetracarboxylic acid and*

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*oxydianiline with no melamine. Relatedly, Brunner et al. does not teach or suggest the pores, pore sizes, heat resistance, and thermal shrinkage recited in Claims 14-22"*

However, the Brunner reference disclose that a polyimide porous substrate is made by tetracarboxylic acid dianhydride and a diamine. The claimed limitation recites "porous polyimide consists of polyimide reaction product of" and not porous substrate consisting of polyimide reaction product consisting the reaction components of." That is, the term "consist of" does not limit any composition to make the polyimide as it is illustrated by the prior art and therefore, the Brunner et al. reference is still applicable in rejection the claimed limitations of claims 14-22. Furthermore, the Applicants incorrectly read the 35 U.S.C 103 rejections above. If the Brunner prior art does read on all of the claimed limitation of claims 14-22, the Brunner rejection would anticipate the claims.

In addition, the Brunner reference was not used to reject claim 1 and therefore, these arguments is not commensurate with the scope of the claims. The Brunner reference clearly discloses that the foaming solution is converted to the solid, porous polyimide (1:35-40), it is unclear from the Examiner's rejection above how the Applicants arrive at "polyimides as a varnish, syrup, coating, impregnating/adhesive agent"



***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELEN O.K. CONLEY whose telephone number is (571)272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795